THE EFFECT OF TERMINAL SUBSTITUTION ON THE HELICAL CARBON STRUCTURE OF FLUORO-ALKANE CHAINS: A PURE ROTATIONAL STUDY OF CH_2OH-$C_{n-1}F_{2n-1}$ (n = 4, 5,& 6)

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Continuing a series of studies to investigate the change in structure of hydrocarbons as the amount of fluorination is increased to varying degrees of substitution, we present a survey on the change in the helical nature of the fluorinated carbon backbone when a $^{-}CH_2OH$ group is substituted for a terminal $^{-}$ CF_3 group. Spectra for 1H,1H-heptafluorobutan-1-ol, 1H,1H-nonafluoropentan-1-ol, and 1H,1H-undecafluorohexan-1-ol were collected separately using a chirped-pulse FTMW spectrometer in the range of 7-13 GHz. Only one conformation was observed for each molecule. Additional measurements of the 1H,1H-heptafluorobutan-1-ol were completed using a Balle-Flygare cavity instrument. Assignments of the singly-substituted ^{13}C isotopologues of the 1H,1H-heptafluorobutan-1-ol were also measured. A comparison of both *ab initio* and experimental structures will be presented.